

Computer Science at Oxford

Michael Spivey

Tutor, Oriel College



UNIVERSITY OF
OXFORD

Department of
COMPUTER
SCIENCE

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Computer Science at Oxford

- What's Computer Science about?
- The Oxford courses
- Four *myths* about Oxford

Writing down the rules

1. Start with the two numbers to be multiplied in columns x and y , and 0 in column z .
2. Repeat until 0 appears in column x :
 - if x is odd, replace z by $y + z$.
 - replace x by $x \div 2$ and y by $2 \times y$.
3. The answer appears in column z .

Writing it as a computer program

$x := a; y := b; z := 0;$

while $x \neq 0$ **do**

if $ODD(x)$ **then** $z := y + z$ **end;**

$x := x \div 2; y := 2 \times y$

end;

return z

Hang on a minute!

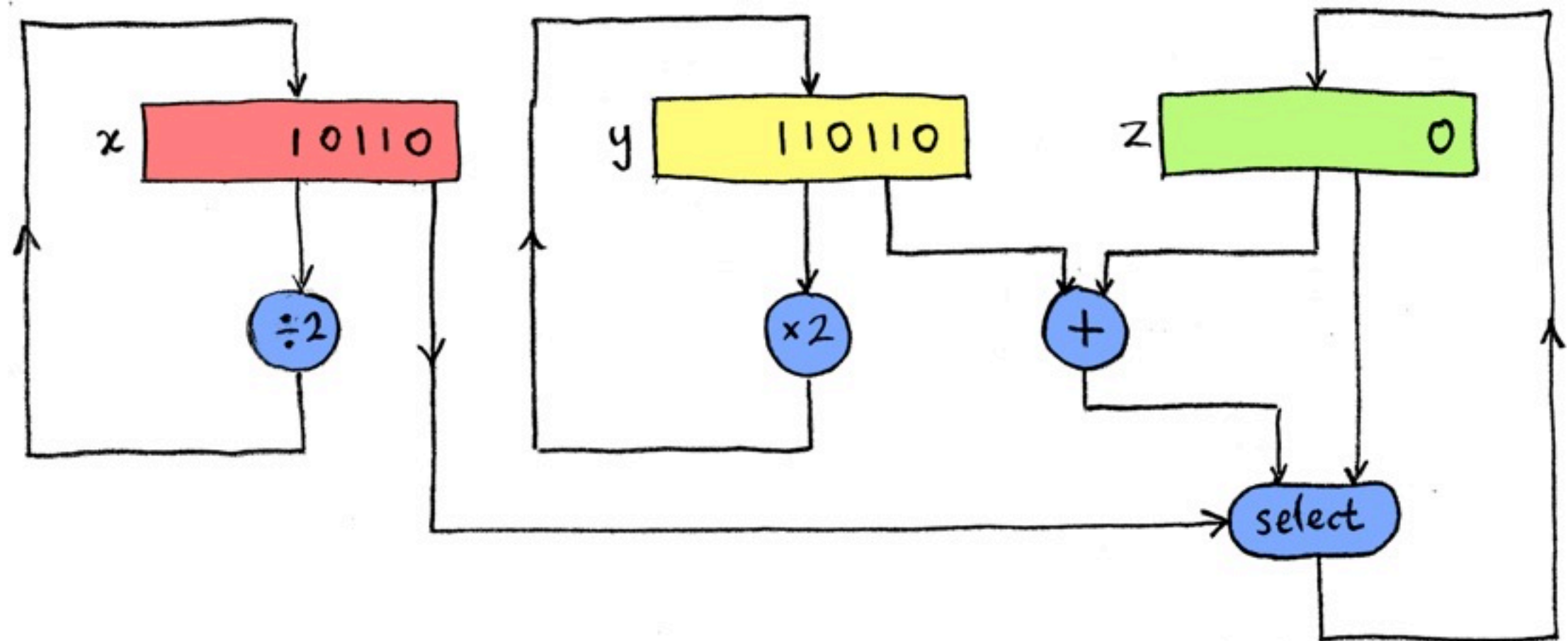
Why not just use this program:

return $a \times b$

and have the multiplication done by an electronic circuit in the computer?

Come to think of it, how do we know that computers and calculators always get the right answer for multiplication?

A multiplication circuit



Computer science

- It's *not* about learning new programming languages.
- It *is* about understanding why programs work, and how to design them.